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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,414

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Akio Funae

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

SAFAIPOUR, BOBBAK

ART UNIT

PAPER NUMBER

2618

NOTIFICATION DATE

DELIVERY MODE

11/30/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/584,414	Applicant(s) FUNAE ET AL.	
	Examiner BOBBAK SAFAIPOUR	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Action is in response to Applicant's response filed on 07/31/2009. Claim 5 has been added. Claims 1-6 are now pending in the present application. **This action is made FINAL.**

Drawings

The replacement drawings submitted on 07/31/2009 are accepted.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

The Applicant argues that the amplifier (fig. 4, element 32) of Igarashi may be seen as analogous to the "RF amplifier" of independent claim 1 whereas the attenuator (fig. 4, element 31) of Igarashi, because it does not receive a control voltage signal, cannot properly be interpreted or construed as analogous to the "RF amplifier" of independent claim 1.

The Examiner respectfully disagrees. Taking a closer look at figure 4 of Igarashi, the control voltage generating unit 40 has an output terminal connected to a control terminal of the automatic gain high frequency amplifier 32. The attenuator 31 has an output terminal connected to an input terminal of the automatic gain high-frequency amplifier 32. (figure 4; col. 2, lines 5-10 and 25-28). Furthermore, Igarashi discloses that the control voltage generating unit 40 generates and supplies a gain control voltage corresponding to the supplied intensity data to the automatic gain high-frequency amplifier 32, and changes the gain of the automatic gain high frequency amplifier 32 in response to the gain control voltage. (col. 3, lines 39-44)

Furthermore, the Applicant further argues that Igarashi's amplifier does not perform attenuation, the attenuator does. Igarashi's attenuator always performs attenuation, regardless of the amplification state of the amplifier. An interpretation of an RF amplifier that includes both Igarashi's amplifier and Igarashi's attenuator would therefore always perform signal attenuation prior to performing signal amplification. Such an interpretation is clearly inconsistent with an RF amplifier that "does not perform attenuation when its gain value is associated with an amplified state" as required by independent claim 1.

The Examiner respectfully disagrees. Although this amended limitation in claim 1 is not disclosed in the instant application disclosure (see 35 U.S.C. 112, first paragraph rejection below), Igarashi discloses the control switching unit sets a first operation state in which the *variable gain high-frequency* amplifier is placed in an *automatic gain amplified state* and the reception bypass circuit is placed in a non-connected state when the reception signal level falls within the smallest first range and increases with the lapse of time (col. 4, lines 57-63). Further, Igarashi discloses the control switching unit switches the variable gain high-frequency amplifier and the reception signal bypass circuit from the second operation state to the first operation state when the *reception signal level decreases* (read as attenuate) with the lapse of time and reaches an intermediate level from the second range to the first range. (col. 5, lines 1-5)

As a result, the argued features are written such that they read upon the cited references; therefore, the previous rejection still applies.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 5 recites the limitation "wherein the RF amplifier does not perform attenuation when its gain value is associated with an amplified state" in the last limitation of independent claims 1 and 5. A previous recitation of this limitation cannot be found in the disclosure of the invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by **Igarashi et al. (US 6,351,504 B1; hereinafter Igarashi).**

Consider **claim 1**, Igarashi discloses a microwave frequency converter comprising:

an RF amplifier whose gain is adjustable to any value (abstract; RF amplifier for amplifying a variable gain of a reception signal) within a range from an amplified state to an attenuated state (col. 3, lines 21-27; the reception signal is attenuated to a predetermined level by the attenuator and frequency mixed with a local oscillation signal from the local oscillator); and

a control circuit for that applies a gain control voltage to the RF amplifier (abstract; a control switching unit for switching a gain state of the RF amplifier);

wherein the control circuit controls the gain control voltage such that the gain of the RF amplifier is in the attenuated state during a period of time including a time during which a transmission section performs oscillation and times therebefore and thereafter (col. 3, lines 21-27; the reception signal is attenuated to a predetermined level by the attenuator and frequency mixed with a local oscillation signal from the local oscillator), and to be in the amplified state during any period of time other than the period of time (abstract; first operation state when the RF amplifier is placed in an automatic gain amplified state); and

further wherein the RF amplifier does not perform attenuation when its gain value is associated with an amplified state (col. 4, lines 57-63; col. 5, lines 1-5)

Consider **claim 6**, Igarashi discloses a microwave frequency converter comprising:

an RF amplifier whose gain is adjustable to any value (abstract; RF amplifier for amplifying a variable gain of a reception signal) within a range from an amplified state to an attenuated state (col. 3, lines 21-27; the reception signal is attenuated to a predetermined level by the attenuator and frequency mixed with a local oscillation signal from the local oscillator); and

a control circuit for that applies a gain control voltage to the RF amplifier (abstract; a control switching unit for switching a gain state of the RF amplifier);

wherein the control circuit controls the gain control voltage such that the gain of the RF amplifier is in the attenuated state during a period of time including a time during which a transmission section performs oscillation and times therebefore and thereafter (col. 3, lines 21-27; the reception signal is attenuated to a predetermined level by the attenuator and frequency mixed with a local oscillation signal from the local oscillator), and to be in the amplified state during any period of time other than the period of time (abstract; first operation state when the RF amplifier is placed in an automatic gain amplified state); and

further wherein the RF amplifier does not perform attenuation when its gain value is associated with an amplified state (col. 4, lines 57-63; col. 5, lines 1-5)

Consider **claim 2**, and **as applied to claim 1 above**, Igarashi discloses the claimed invention wherein the control circuit continuously changes the gain control voltage to continuously change the gain of the RF amplifier from a predetermined gain value in the amplified state to a predetermined gain value in the attenuated state, or from a predetermined gain value in the attenuated state to a predetermined gain value in the

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amplified state. (col. 4, line 52 to col. 5, line 7; read as when the reception signal level goes from the first range to a second range larger than the first range when the reception signal level decreases with the lapse of time)

Consider **claim 3**, and **as applied to claim 1 above**, Igarashi discloses the claimed invention wherein the control circuit instantaneously changes the gain control voltage to instantaneously change the gain of the RF amplifier from a predetermined gain value in the amplified state to a predetermined gain value in the attenuated state, or from a predetermined gain value in the attenuated state to a predetermined gain value in the amplified state. (abstract; col. 4, line 52 to col. 5, line 7; (read as automatic gain amplified state)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Igarashi et al. (US 6,351,504 B1; hereinafter Igarashi)** in view of **Takahashi (US 5,554,954)**.

Consider **claim 4**, and **as applied to claim 3 above**, Igarashi discloses the claimed invention except for wherein the RF amplifier employs a FET device or a HEMT device which is operated by applying a negative voltage to a gate thereof and a positive voltage to a drain thereof, and the control circuit simultaneously switches ON/OFF a gate voltage and a drain voltage to be applied to the gate and the drain of the device to cause the gain of the RF amplifier to be in the attenuated state when the gate voltage and the drain voltage are switched ON, and to be in the amplified state when the gate voltage and the drain voltage are switched OFF.

In related art, Takahashi discloses the RF amplifier employs a FET device or a HEMT device (read as FET amplifier) which is operated by applying a negative voltage to a gate thereof and a positive voltage to a drain thereof, and the control circuit simultaneously switches ON/OFF a gate voltage and a drain voltage to be applied to the gate and the drain of the device to cause the gain of the RF amplifier to be in the attenuated state when the gate voltage and the drain voltage are switched ON, and to be in the amplified state when the gate voltage and the drain voltage are switched OFF.

(abstract; A power supply circuit disclosed herein includes a three-terminal regulator for stabilizing a positive voltage applied thereto, a voltage converter for converting the stabilized voltage into a negative voltage, a power-supply section for stabilizing a voltage by a light-emitting diode, and a control circuit for applying a bias voltage across a drain

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and source of a GaAs FET amplifier only when a voltage is being applied across the gate and source of the amplifier. When power is introduced from a power supply, the presence of the negative voltage supplied from the voltage converter is sensed by the control circuit and a bias begins to be applied to the gate. Therefore, when it is sensed that a predetermined voltage is applied to the gate, a bias begins to be applied to the drain of the FET thereafter. When power from the power supply is cut off, a drop in voltage is sensed and the drain bias begins being cut off while the gate bias for the FET is cut off thereafter.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the FET device of Takahashi into the microwave frequency converter of Igarashi to raise efficiency and obtain higher reliability.

Consider **claim 6**, and **as applied to claim 5 above**, Igarashi discloses the claimed invention except for wherein the RF amplifier is a FET.

In related art, Takahashi discloses the RF amplifier employs a FET device or a HEMT device (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the FET device of Takahashi into the microwave frequency converter of Igarashi to raise efficiency and obtain higher reliability.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

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401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the

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Examiner should be directed to Bobbak Safaipoor whose telephone number is (571) 270-1092. The Examiner can normally be reached on Monday-Friday from 9:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Bobbak Safaipoor/
Examiner, Art Unit 2618

November 19, 2009

/Matthew D. Anderson/

Supervisory Patent Examiner, Art Unit 2618